SHORT COMMUNICATION

RECUPERATION OF A MEDITERRANEAN MONK SEAL PUP, Monachus monachus, IN DESERTAS ISLANDS, MADEIRA ARCHIPELAGO: CONDITIONS FOR ITS SUCCESS

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During the nursing period, young monk seals depend on their mothers to survive. Sometimes, however, some monk seal pups loose contact with their mothers due to heavy seas. In situations like these, human intervention is crucial for pups' survival. In December 1995, a pup was found on Deserta Grande, separated from its mother and was picked up and taken to the Desertas station at Doca. There it was given shelter and exposed to frequent human contact and the corresponding possibility of infections. Although it appeared to be healthy, the animal died 12 days later. Autopsy results confirmed that the death of the animal has been caused by septicemia. This case led to the construction of a rehabilitation centre for the monk seals in the Desertas Islands. In December 1997, another pup was found washed up on the beach at Doca, Deserta Grande, in conditions identical to the previous one. Based on previous experience, and benefiting from the facilities of the Monk Seal Rehabilitation centre, plus the fact that the pup's mother was located, it was possible to rehabilitate the animal and later return it to the wild. This time, the existing conditions permitted the use of a strict protocol for the rehabilitation of the seal, since the first encounter with its release in the natural habitat. Aseptic conditions were maintained to the extreme, and human contact avoided to a minimum. This care was an important contribution for the rehabilitation of this seal.

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INTRODUCTION

The Mediterranean monk seal (Monachus monachus) is Europe’s most endangered marine mammal (JOHNSON & LAVINGNE 1998) with no more than about 300-400 individuals left (AGUILAR 1998). In Portugal, the only herd of monk seals is found in the Desertas Islands (Fig. 1), which were classified as a Natural Reserve in 1990, and by that time the population size was estimated in 10 individuals (NEVES 1991). Since that time, the size of the population has been increasing, and it is presently estimated to number 19 individuals. This is the result of conservation work, which has been carried on there, in effectively protecting the monk seal and its habitat. Monitoring the monk seal and studying its biology and ecology are fundamental to determining the most appropriate strategies for its protection. In the course of this work, it has been found that one of the threats to the population is linked to the fact that the season for births and the pups' first outings into the sea, from November to February, coincides with the season in which ocean storms are the most frequent in the Desertas Islands (PIRES 1997). The pups are still very vulnerable in this phase, not being able to withstand the action of the waves. Thus they run the risk of being driven into areas of strong breakers next to the rocky coast, or pushed by the ocean currents far from the cave where they were born, losing contact with their mother, upon whom they are still dependent for feeding.

This kind of situation appended twice in the Desertas Islands. One in 1995, when the rehabilitation process was unsuccessful, and the
second in 1997 when the pup was rehabilitated with success. The objective of this article was to describe procedures followed during the recuperation of the two pups, and to analyse the factors that contributed to failure in the first case and success in the second.

Fig. 1. Location of the Desertas Islands and the locations where the pups were found and stayed.

MATERIAL AND METHODS

Pup 1

Location and identification of the pup

The pup was found by one of the wardens of the Madeira Natural Park on December 3, 1995, while manning one of the observation posts used in monitoring and studying the monk seal. The post is located on the beach of an inlet called Calhau das Areias. There he noticed that the monk seal tried several times to get to the sea, but always ended up being thrown back up on land by the action of the waves. Because the sea conditions were tending to worsen, the warden decided to pick up the pup and bring it to the Desertas Islands station at Doca.

Meanwhile, an unsuccessful search for the mother of the pup was undertaken, using a boat to run along the SW coast of Deserta Grande, which is used by the monk seals for raising their young (Pires 1997).

The pup was a female weigh 19 kg, with 100 cm of standard length and 100 cm of total length. The age was calculated to be 3-4 weeks, based on the absence of the umbilical cord, which probably falls off by the 5th day (Visser 1991); on the fact that the new growth of fur which appears between the fourth and sixth weeks of life (Hart & Vedder 1990; Visser 1991; Dendrinos et al. 1996) had not yet begun; and the fact that its teeth were ready to come through, which happens between 3 and 7 weeks of life (Hart & Vedder 1990; Visser 1991). The name given to this pup was “Maria”.

“Maria” was dehydrated (no humidity around the eyes) and injured at the base of the flippers. Treatment and feeding

“Maria” remained at the station at Doca, cohabiting the same space with the Nature Wardens who work there, being constantly in contact with them. Although the space and materials used by the seal was disinfected daily with sodium hypochloride, “Maria” was exposed, every day, to a potentially contaminated environment for a baby monk seal.

The care given the pup was essentially in keeping it fed and hydrated. The evaluation of its condition was made by keeping track of its rectal temperature and weight, and by observing its behaviour.

The pup was fed and hydrated 7 times a day, on average, with a mixture consisting of: 100 - 200 g of scabbard fish, 100 - 250 g of oatmeal, and 250 - 650 ml of water with hydrating salts. The first two days, 850 g of fish were used, and this was gradually increased to 1300 g. Contrary to what happens with the majority of pinnipeds in this situation, “Maria” ate voluntarily (Fig. 2) and “force feeding” was not necessary seeking to keep the pup hydrated and in permanent contact with its natural habitat, it was taken to the sea every day and bathed. Although the pup was carried by one of the wardens the first few times, it later became able to accompany them on its own, following them.
Fig. 2. "Maria" feeding by herself.

Pup 2

Location and identification of the pup
At 14:30 h. on December 3, 1997, exactly two years from the day "Maria" was found, a pup was found washed ashore at Doca. The observation work at that time was being carried out in the Tabaqueiro inlet, where 3 days earlier it had been noted that the beach was being used by a pup and two females. The fact that both females nursed the pup indicated that one of them had lost her pup.

The pup was dehydrated, with injuries at the base of the flippers. A thick and white mucus in its nostrils evidenced an obstruction of the respiratory tract, and the temperature was high, 38.8°C.

Treatment and feeding
The animal was immediately taken to the Monk Seal Rehabilitation Unit, built at Doca, on the Desertas Islands in 1997. This special care unit consists of a kitchen where food is prepared, and hygienic measures (change of clothes, use of gloves and masks and disinfection of utensils) are followed, when entering the isolated room for seals. The isolating room has a pool with 3 x 2.5 m wide, 0.5 deep and a heated floor of 1.5 x 4 m, where hygienic conditions are maintained.

The pup's condition was checked and “first aid” help was implemented in order to improve the condition of the seal. The pup was hydrated with a saline solution prepared from 500 ml of sterilised water to which various vitamin complexes were added (A, B-1, 2, 6, 12, C, D3, and E). This mixture was given by means of a funnel and a tube inserted in the pup's oesophagus. The wounds were disinfected and the respiratory passages were unblocked with the aid of a drug, hexamidine, sprayed into the nasal passages in liquid form.

The pup was female weighing 17.40 kg and measuring 102 cm standard length, and 108 cm total length. The age was estimated at 1-3 weeks. This was based on the fact that the navel was not healed, and the gums of the upper jaw, which are soft when the monk seals are born (Hart & Vedder 1990), were hard, and by comparison with "Maria". The pup was named "Autonomia".

Since the pup's probable mother (Fig. 3) had been located, the pup's stay in the Rehabilitation Unit was limited to bring the temperature to normal and effect rehydration, so the animal could be returned as soon as possible to its natural surroundings. By 13:00h of the following day, the pup was hydrated 4 times and its temperature recorded.
RESULTS

Pup 1

Evolution of the pup's condition

Over a period of 11 days, the pup was apparently healthy. Although its weight remained stable and its temperature varied between 34.5°C and 37.1°C, it was active and the fact that it was eating regularly indicated that it was healthy. However, on the 12th day, the pup demonstrated lethargic behaviour and died at 11:30h.

The Regional Veterinary Laboratory in Funchal, did the autopsy and the analyses. It was carried out an anatomic-pathologic analysis and also a histopathologic analysis using samples of the lung, kidney, spleen and liver. A hemoculture and macerate of viscera were used for microbiological analyses.

The results of the autopsy confirmed that the pup's death was caused by septicemia. Congestive haemorrhagic lesions were found in the lung, kidney, spleen and parenchyma. The liver presented a subcapsular haemorrhage, and the intestine presented a catarrhal enteritis. The following pathogenic agents were isolated: *Salmonella arizonae*, *Staphylococcus aureus*, group B *Streptococcus*, *Streptococcus dysgalactiae*, *Streptococcus bovis* I, *Streptococcus equisimilis*, hemolytic *E. coli* β, and type I *E. coli*.

Measures taken as a result of this experience

The Monk Seal Rehabilitation Unit was built, and a biologist from the Madeira Natural Park was trained at the Seal Rehabilitation Centre at Pieterburen (SRRC) to accompany the rehabilitation of monk seals.

Pup 2

Evolution of the pup's condition

Soon after a 4-hour period of isolation in the Unit, the rectal temperature dropped to 37.8°C and remained stable until the pup was placed in its natural environment.

Integration of the pup in its environment

At 13:45h on December 4, the pup was placed on the beach of Tabaqueiro, about 30 m from the other three animals, which were sleeping. The pup called out and the female, which was alone, answered immediately and came up to the pup to establish a contact, typical of mother and young, and soon afterwards nursed the pup. On the following days, it was the other female who
adopted the pup and began nursing it and accompanying it on excursions into the sea outside the Tabaqueiro inlet.

DISCUSSION

The death of “Maria” was the result of a rehabilitation process, which was undertaken without the necessary conditions and experience to ensure its success. Conditions of asepsis were practically non-existent, which according to the autopsy conclusions, were the cause of death of the pup. This, due to the fact that the pup was deprived of its maternal food, essential to mammals in the first weeks of life as a way of obtaining antibodies and organic defences against infections from the surrounding environment. Besides this, the frequent contact with the personnel on duty at the Desertas station would lead to the dependence of the seal on humans, which would be prejudicial to the pup. A repeated close contact with humans could result in a dependence on them, which could cause problems to the animal after its release into the wild. In addition, contact between humans and the pup should be avoided, because infections and diseases can be transmitted.

Although this was a negative experience, two years later it contributed to the success in rehabilitating “Autonomia”, because it had alerted us to the need for creating conditions for the rehabilitation of monk seals in the Desertas Islands. Thus, “Autonomia” was treated in the Rehabilitation Unit according to the protocol for the recuperation of seals followed by the Centre at Pieterburen. However, in the case of this pup, the fact that its probable mother was located was, no doubt, the factor that led to the success of this operation, principally because she was nursing another pup. As a general rule among seals, mothers end up abandoning their pups after these are absent for 3 days, because they stop producing milk due to the lack of the sucking stimulation (L. Vedder pers. comm).

The recuperation of this pup is an excellent example of the importance of the work of monitoring and studying the monk seal for its conservation, which permitted the survival of this pup. This, together with the existence of conditions for the recuperation of abandoned pups reduces their mortality to a minimum.

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REFERENCES


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